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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/686,742	10/11/2000	Cyril Cabral JR.	YOR000361US1 (057)	5005

7590 07/31/2002

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EXAMINER

CRUZ, LOURDES C

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 07/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/686,742

Applicant(s)

CABRAL ET AL.

Examiner

Lourdes C. Cruz

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 16-25 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 and 3-14 is/are allowed.
- 6) ☒ Claim(s) 2 and 26-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 16-25 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

The inventions are distinct, each from the other because of the following reasons:

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-15 and 26-33, drawn to a semiconductor device, classified in class 257, subclass 758.
- II. Claims 16-25, drawn to a method of making a semiconductor device, classified in class 438, subclass 382+.

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the apparatus as claimed could be made by depositing the second insulating layer such that the vias are formed during deposition instead of after deposition.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Tung on January 11, 2001 a provisional election was made with traverse to prosecute the invention of I, claims 1-15,

26-33. Applicant in replying to this Office action must make affirmation of this election. Claims 16-25 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claimed substrate must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

See that on page 17, lines 10+, the disclosure says that no substrate is shown. However, on page 21, lines 5+, the dielectric layer 12 is referred to as a substrate.

Also, see that claim 15 recites a third insulating material layer. This layer is not in the drawings. See objection as applied to the claimed substrate above.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The figures showing a cross sectional view of the claimed invention are improperly crosshatched. All of the cross hatching patterns should be selected from

those shown on page 600-81 of the MPEP based on the material of the part. Also see 35 CFR 184 (h)(3) and MPEP 608.02.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

See that claim 1, from which claim 2 depends, already recites a substrate with a first dielectric layer on top. This has made the claim confusing since it is unclear if Applicant intended to define a further dielectric layer, or if there is failure to further define the pre-defined one (in which case it will lack antecedent basis).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily

published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 26-33 are rejected under 35 U.S.C. 102(e) as being anticipated by McInick et al. (US 6274899).

McInick et al. (Fig. 18, Cols. 8+) discloses:

An electronic structure having an in-situ formed unit resistor in electrical communication with a capacitor comprising:

A unit resistor formed by a first conductive element 206 and a second conductive element 116 situated in different levels in said electronic structure connected therein-between by an electrically resistive via 120, said electrically resistive via being formed of a material having a resistivity of at least $100\Omega\text{-cm}$; and a capacitor (Col. 8, 24+) formed juxtaposed to and in electrical communication with said unit resistor.

The prior art also discloses:

- Said capacitor being a deep-trench or a stacked capacitor
- Said unit resistor being connected in series/parallel (Col. 8, 55+) with said capacitor
- Said unit resistor being electrically connected to and situated on top/below said capacitor
- Said electrically resistive via being formed of a refractory metal-silicon-nitrogen material wherein said refractory metal is Ta (Col. 3, 50+)

- Said electrically resistive via being formed with a height between about 10nm and about 1,000 nm (Col 3, lines 37+), which will inherently have a diameter of **about** the dimensions as claimed, since the prior art discloses a via proportionate to the one claimed. Additionally, see that the word "about" sets an open range since it is subject to interpretation.

Allowable Subject Matter

Claim 2 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claims 1 and 3-15 are allowable. See that the claims recite first and second pluralities of conductive elements, vias and their resistivity, and their specific electrical communication with other structural limitations.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lourdes C. Cruz whose telephone number is 703-306-5691. The examiner can normally be reached on M-F 10:00- 6:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Application/Control Number: 09/686,742
Art Unit: 2827


Page 7

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Lourdes C. Cruz
Examiner
Art Unit 2827



Lourdes Cruz
July 29, 2002



DAVID L. TALBOTT
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800